



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2012-0520; Directorate Identifier 2002-NE-43-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; Turbomeca S.A. Turboshift Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede an existing airworthiness directive (AD) that applies to all Turbomeca S.A. Arriel 1A, 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E, 1E2, 1K, 1K1, 1S, and 1S1 turboshift engines. The existing AD currently requires initial and repetitive visual inspections for erosion caused by dust ingestion and, if necessary, cleaning of the gas generator (module M03). Since we issued that AD, in-service experience has shown that dust inside the gas generator hollow shaft may be found when the axial compressor wheel has less erosion than initially assessed. This proposed AD would require determining the engine history, a one-time visual inspection of the axial compressor for erosion, initial and repetitive cleaning of the gas generator hollow shaft, and replacement of the rear bearing if the amount of dust collected during cleaning exceeds 8 grams. This proposed AD also includes an optional terminating action. We are proposing this AD to prevent an unbalance of the gas generator rotating assembly, which may lead to gas generator rear bearing failure, and uncommanded engine shutdown.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact Turbomeca S.A., 40220 Tarnos, France; phone: 33 05 59 74 40 00; fax: 33 05 59 74 45 15. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Rose Len, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; e-mail: [rose.len@faa.gov](mailto:rose.len@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2012-0520; Directorate Identifier 2002-NE-43-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

### **Discussion**

On June 13, 2003, we issued AD 2003-12-14, Amendment 39-13199 (68 FR 36900, June 20, 2003), for all Turbomeca S.A. Arriel 1A, 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E, 1E2, 1K, 1K1, 1S, and 1S1 turboshaft engines. That AD requires initial and repetitive visual inspections for ingestive erosion and, if necessary, cleaning of the module M03. That AD resulted from reports from the manufacturer of an unbalance due to accumulation of dust in the gas generator hollow shaft. We issued that AD to prevent an unbalance of the gas generator rotating assembly, which may lead to deterioration of the gas generator rear bearing and uncommanded engine shutdown.

### **Actions Since Existing AD Was Issued**

Since we issued AD 2003-12-14, Amendment 39-13199 (68 FR 36900, June 20, 2003), in-service experience has shown that dust inside the gas generator hollow shaft may be found when the axial compressor wheel has less erosion than initially assessed.

Also, since we issued that AD, Turbomeca S.A. has developed an improvement of the gas generator hollow shaft (Modification TU360), which makes the engine less susceptible to dust ingestion. This proposed AD would have optional terminating action to the inspections and cleaning, by the incorporation of Modification TU360. Also, since we issued AD 2003-12-14, the European Aviation Safety Agency (EASA) issued AD 2012-0071, dated April 26, 2012, to address the conditions and improvements just described in the European Community. This proposed AD would remove Turbomeca S.A. Arriel 1E and 1K turboshaft engines from the applicability section of the AD. The 1E engine is no longer in service. The 1K engine is not an FAA validated engine and was incorrectly included in AD 2003-12-14.

#### **Relevant Service Information**

We reviewed Turbomeca S.A. Alert Mandatory Service Bulletin (MSB) No. A292 72 0230, Version C, dated February 29, 2012. The Alert MSB describes procedures for the determination of the engine history, a one-time visual inspection of the axial compressor for erosion, to define the initial cleaning of the gas generator hollow shaft, and the interval for repetitive cleaning of the shaft. The referenced service bulletin also describes the criteria for replacement of the rear bearing if dust is found.

#### **FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

#### **Proposed AD Requirements**

This proposed AD would require the following:

- Determining the engine history; and

- Performing a one-time visual inspection of the axial compressor for erosion, and initial and repetitive cleaning of the gas generator hollow shaft; and
- Replacing the gas generator rear bearing before further flight if the dust collected during any cleaning inside the gas generator hollow shaft exceeds 8 grams; and
- If there are any changes in accordance with paragraph 1.A.(1)(a)1.3 of Turbomeca S.A. Alert MSB No. A292 72 0230, Version C, dated February 29, 2012, within 50 engine hours time-in-service after such a change, accomplish the actions required by this AD; and
- After the effective date of the AD, do not install a module M03 on an engine unless it is in compliance with the requirements in this proposed AD.

### **Costs of Compliance**

We estimate that this proposed AD would affect about 1,421 engines installed on helicopters of U.S. registry. We also estimate that it would take about 24 work-hours per engine to inspect and clean the gas generator module. The average labor rate is \$85 per work-hour. A replacement gas generator rear bearing would cost about \$4,128 per engine and take about 8 work-hours to replace. Based on these figures, we estimate the cost of the proposed AD on U.S. operators to be \$2,898,840.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

## **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 2003-12-14, Amendment 39-13199 (68 FR 36900, June 20, 2003), and adding the following new AD:

**Turbomeca S.A.:** Docket No. FAA-2012-0520; Directorate Identifier 2002-NE-43-AD.

#### **(a) Comments Due Date**

The FAA must receive comments on this AD action by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD supersedes AD 2003-12-14, Amendment 39-13199 (68 FR 36900, June 20, 2003).

#### **(c) Applicability**

This AD applies to all Turbomeca S.A. Arriel 1A, 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E2, 1K1, 1S, and 1S1 turboshaft engines that have not incorporated Turbomeca S.A. Modification TU360.

#### **(d) Unsafe Condition**

This AD was prompted by in-service experience showing that dust inside the gas generator hollow shaft may be found when the axial compressor wheel has less erosion than initially assessed. We are issuing this AD to prevent an unbalance of the gas generator rotating assembly, which may lead to deterioration of the gas generator rear bearing and uncommanded engine shutdown.

#### **(e) Compliance**

Comply with this AD within the compliance times specified, unless already done.

(1) Within 50 engine hours after the effective date of this AD, determine the engine history and perform the maintenance actions at the specified schedules. Use paragraphs 1.A. and 2.A. through 2.C. of Turbomeca S.A. Alert Mandatory Service Bulletin (MSB) No. A292 72 0230 Version C, dated February 29, 2012 to perform the maintenance actions and to establish the cleaning schedule.

(2) If during any of the cleanings, the dust weight collected inside the gas generator hollow shaft is more than 8 grams, replace the gas generator rear bearing before further flight.

(3) After the effective date of this AD, if there are any changes in accordance with paragraph 1.A.(1)(a)1.3 of Turbomeca S.A. Alert MSB No. A292 72 0230, Version C, dated February 29, 2012, within 50 engine hours time-in-service after such a change, accomplish the actions as specified in paragraph (e)(1) and (e)(2) in this AD.

(4) After the effective date of this AD, do not install any gas generator (module M03) on an engine unless it is in compliance with this AD.

(5) After the effective date of this AD, do not install any gas generator rear bearing that has operated on an engine with a hollow shaft that has been found to have a dust weight more than 8 grams.

**(f) Optional Terminating Action**

As optional terminating action to the repetitive actions in this AD, modify the engine by incorporating Turbomeca S.A. Modification TU360.

**(g) Alternative Methods of Compliance (AMOCs)**

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

**(h) Related Information**

(1) For more information about this AD, contact Rose Len, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England



Executive Park, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; e-mail: rose.len@faa.gov.

(2) Refer to European Aviation Safety Agency AD 2012-0071, dated April 26, 2012, and Turbomeca S.A. Alert MSB No. A292 72 0230, Version C, dated February 29, 2012, for related information.

(3) For service information identified in this AD, contact Turbomeca S.A., 40220 Tarnos, France; phone: 33 05 59 74 40 00; fax: 33 05 59 74 45 15. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on July 20, 2012.

Peter A. White,  
Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.

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